

For example: an image 2,048 pixels across and 1,536 high has just over 3.1 megapixels

## Image Sensor Size

Because of digital sensor is essentially made up of millions of pixels, So larger Sensors contain larger pixels, which are much collected accumulated charge, Means Better quality.

With more light gathered per pixel, a higher signal to noise ratio, less electronic grain and better tonality

# Composition In Photography

## Composition

In the visual arts (in particular painting, graphic design, photography and sculpture) composition is the placement or arrangement of visual elements or ingredients in a work of art or a photograph, as distinct from the subject of a work. It can also be thought of as the organization of the **elements** of art according to the **principles** of art.

The term composition means 'putting together,' and can apply to any work of art, from music to writing to photography, that is arranged or put together using conscious thought. In the visual arts, composition is often used interchangeably with various terms such as design, form, visual ordering, or formal structure, depending on the context. In graphic design and desktop publishing, composition is commonly referred to as page layout.

## Design Elements

Design elements are the basic units of a painting, drawing, design or other visual piece and include:

### Line

A fundamental mark or stroke used in drawing in which the length is longer than the width. Two connected points form a line and every line has a length, width, and direction it is straight.

An **implied line** is created by positioning a series of points so that the eye tends automatically to connect them. "Follow the dotted line" is an example familiar to us all. Our eye connects the dots to follow the graceful line of a suspension bridge in photo.

A psychic line is illustrated. There is no real line, not even intermittent points, yet

we feel a line, a mental connection between the two players. Our eyes invariably follow the direction a figure is pointing, and a psychic line results.

Uses:

A line that defines or bounds an edge, but not always the outside edge, could represent a fold or color change.

A line that defines the edge of space can also be created by a gap of negative space. Many uses include to separate columns, rows of type, or to show a change in document type.

Lines are used in linear shapes and patterns to decorate many different substrates, and can be used to create shadows representing tonal value, called hatching.

## Shape

Shape is an enclosed area distinguished from its surroundings and often defined by a contour line. It has height and width and is usually considered two-dimensional.

It's defined as an area that stands out from the space next to or around it due to a defined or implied boundary, or because of differences of value, color, or texture. All objects are composed of shapes and all other 'Elements of Design' are shapes in some way.

Categories:

**Mechanical Shapes** or Geometric Shapes are the shapes that can be drawn using a ruler or compass. Mechanical shapes, whether simple or complex, produce a feeling of control or order.

**Organic Shapes** are freehand drawn shapes that are complex and normally found in nature. Organic shapes produce a natural feel.

## Color

Color can play a large role in the elements of design with the color wheel being used as a tool, and color theory providing a body of practical guidance to color mixing and the visual impacts of specific color combination.

The essential fact of color theory is that color is a property of light, not an object itself. Sir Isaac Newton illustrated this property of light in the seventeenth century when he put white light through a prism. The prism broke up white light into the familiar rainbow of hues. This presents the spectrum of wavelengths visible to the human eye. Objects have no color of their own but merely the ability to reflect certain wavelengths of light.

But although color indeed comes from light, the guidelines of color mixing and usage are different depending on whether the color source is light or pigments and dyes. Rays of light are direct light, whereas the color of paint is reflected

light. Color from light combines and forms new visual sensations based on what is called the additive system. On the other hand, pigments combine in the subtractive system. This term is appropriate. Blue paint is “blue” because when light hits its surface, the pigment absorbs (or “subtracts”) all the color components except the blue that is reflected to our eyes. Artists should be aware of both systems. The painter, of course, will be mainly concerned with the subtractive, whereas the stage lighting designer, photographer, and often the interior designer will be concerned with the additive.

Uses:

Color can aid organization so develop a color strategy and stay consistent with those colors.

It can give emphasis to create a hierarchy

Attributes:

Hue: Values and tints and shades of colors that are created by adding black to a color for a shade and white for a tint. Creating a tint or shade of a color reduces the saturation.

Saturation gives a color brightness or dullness.

## Texture

Meaning the way a surface feels or is perceived to feel. Texture can be added to attract or repel interest to an element, depending on the pleasantness of the texture.

Types of texture

**Tactile texture** is the actual three-dimension feel of a surface that can be touched. Painter can use impasto to build peaks and create texture.

**Visual texture** is the illusion of the surfaces peaks and valleys, like the tree pictured. Any texture shown in a photo is a visual texture, meaning the paper is smooth no matter how rough the image perceives it to be.

Most textures have a natural feel but still seem to repeat a motif in some way. Regularly repeating a motif will result in a texture appearing as a pattern.

## Space

In design, space is concerned with the area deep within the moment of designated design, the design will take place on. For a two-dimensional design space concerns creating the illusion of a third dimension on a flat surface:

Overlap is the effect where objects appear to be on top of each other. This illusion makes the top element look closer to the observer. There is no way to determine the depth of the space, only the order of closeness.

Shading adds gradation marks to make an object of a two-dimensional surface seem three-dimensional.

Highlight, Transitional Light, Core of the Shadow, Reflected Light, and Cast Shadow give an object a three-dimensional look.

### **Aerial (Atmospheric) Perspective**

Is based on how air acts as a filter to change the appearance of distance objects. In other meaning describes the use of color or value (dark and light) to show depth.

### **Plan, Elevation, Perspective**

The architect's job includes communicating a proposed building to a client so that the spatial relationships can be understood. It is not surprising that many aspects of spatial illusion were first utilized by architects and then adapted by painters and other artists. The necessity for more than one way to describe a space (or the inadequacy of any one method to tell a complete story) is the reason for three different kinds of drawing being used for communication.

### **Linear Perspective**

Linear perspective is a complex spatial system based on a relatively simple visual phenomenon: as parallel lines recede, they appear to converge and to meet on an imaginary line called the horizon, or eye level. We have all noticed this effect with railroad tracks or a highway stretching away into the distance. From this everyday visual effect, the whole science of linear perspective has developed. Artists had long noted this convergence of receding parallel lines, but not until the Renaissance was the idea introduced that parallel lines on parallel planes all converge at the same place (a vanishing point) on the horizon.

### **One-Point Perspective**

The concept of linear perspective starts with the placement of a horizontal line, the "horizon," that corresponds to the "eye level" of the artist. On this line is located the needed number of vanishing points to which lines or edges will be directed. It might seem that working by a "formula" such as linear perspective provides would lead to a certain sameness and monotony in pictures. This is not true, because the artist's choice in the placement of the horizon and vanishing points within the picture (or outside it) is almost unlimited. A single point has been placed on the horizon line, and all the lines at right angles to the plane converge toward that point.

### **Two-Point Perspective**

One-point perspective presents a very organized and unified spatial image. Two-point perspective probably appears to us as more natural and lifelike. Here we are not looking head-on at the scene. Now, it is being viewed from an angle. No objects are parallel to the picture plane, and all edges recede to two points on the horizon line. This more nearly approximates our usual visual experience.

## **Multipoint Perspective**

In perspective drawing the vertical edges of forms generally remain vertical. Sometimes a third vanishing point is added above (or below) the horizon so that the vertical parallels also taper and converge. This technique is useful to suggest great height, such as looking up at (or down from) a city skyscraper.

## **Form**

Form is the purely visual aspect, the manipulation of the various elements and principles of design.

Form is the organization of visual elements in three dimensions. In addition to height and width, form has actual, or the illusion of, volume or depth.. Form can be measured, from top to bottom (height), side to side (width), and from back to front (depth). Form is also defined by light and dark. There are two types of form, geometric (man-made) and natural (organic form). Form may be created by the combining of two or more shapes. It may be enhanced by tone, texture and color. It can be illustrated or constructed.

## **Principles of Design**

The Principles are concepts used to organize or arrange the structural elements of design. Principles applied to the elements of design that bring them together into one design. How one applies these principles determines how successful a design may be.

## **Unity**

Unity means that a congruity or agreement exists among the elements in a design; they look as though they belong together, as though some visual connection beyond mere chance has caused them to come together.

Another term for the same idea is harmony. If the various elements are not harmonious, if they appear separate or unrelated, your composition falls apart and lacks unity.

### **Ways To Achieve Unity**

#### **Proximity**

An easy way to gain unity to make separate elements look as if they belong together is by proximity, simply putting the elements close together. Proximity is a common unifying factor. Through proximity we recognize constellations in the skies and, in fact, are able to read. Change the proximity scheme that makes letters into words, and reading becomes next to impossible.

## **Repetition**

A valuable and widely used device for achieving visual unity is repetition. As the term implies, something simply repeats in various parts of the design to relate the parts to each other. The element that repeats may be almost anything: a color, a shape, a texture, a direction, or an angle.

## **Continuation**

A third way to achieve unity is by continuation, a more subtle device than proximity or repetition, which are fairly obvious. Continuation, naturally, means that something “continues” usually a line, an edge, or a direction from one form to another. The viewer’s eye is carried smoothly from one element to the next.

## **Continuity & The Grid**

As we have learned, continuation is the planned arrangement of various forms so that their edges are lined up hence, forms are “continuous” from one element to another within a design.

## **Focal Point**

The emphasized element initially can attract attention and encourage the viewer to look closer. Being able to capture the viewer’s attention and hold it, even if only for a second or two, is the key to effective design. By effective design it mean design that does more than look pretty, it accomplishes a given goal. This can be anything from getting someone to notice a sale at Wal-Mart to building awareness for the name of a political candidate.

There can be more than one focal point. Sometimes an artwork contains secondary points of emphasis that have less attention value than the focal point. These serve as accents or counterpoints. However, the designer must be careful. Several focal points of equal emphasis can turn the design into a three-ring circus in which the viewer does not know where to look first. Interest is replaced by confusion: When everything is emphasized, nothing is emphasized.

## **Emphasis By Contrast**

Very often in art the pictorial emphasis is clear, and in simple compositions (such as a portrait) the focal point is obvious. But the more complicated the pattern, the more necessary or helpful a focal point may become in organizing the design.

## **Emphasis By Isolation**

A variation on the device of emphasis by contrast is the useful technique of emphasis by isolation. This is contrast, of course, but it is contrast of placement, not form. In such a case, the element, as here, need not be any different from the other elements in the work.

## **Emphasis By Placement**

It does not require much in the way of proof to say that putting something at the center of a composition creates emphasis. In fact, it is often a criticism of naïve or boring compositions to notice that the subject is plopped down smack in the center. So then it becomes interesting to see how the center can be used in a subtle way to achieve emphasis.

## **Scale and proportion**

Scale and proportion are related terms: both basically refer to size. Scale is essentially another word for size. “Large scale” is a way of saying big, and “small scale” means small. Big and small, however, are relative. What is big? “Big” is meaningless unless we have some standard of reference. A “big” dog means nothing if we do not know the size of an average dog. This is what distinguishes the two terms. Proportion refers to relative size measured against other elements or against some mental norm or standard.

We often think of the word proportion in connection with mathematical systems of numerical ratios. It is true that many such systems have been developed over the centuries. Artists have attempted to define the most pleasing size relationships in items as diverse as the width and length of sides of a rectangle to parts of the human body.

## **Balance**

Some equal distribution of visual weight, It is a universal aim of composition.

A sense of balance is innate; as children we develop a sense of balance in our bodies and observe balance in the world around us. Lack of balance, or imbalance, disturbs us. We carefully avoid dangerously leaning trees, rocks, furniture, and ladders.

To understand balance, think of the balance beam. When objects are of equal weight, they are in balance. If you have several small items on one side, they can be balanced by a large object on the other side. Visual balance works in much the same way. It can be affected not only by the size of objects, but also their value (i.e. lightness or darkness, termed visual weight).

### **Symmetrical Balance (Formal Balance)**

Symmetrical balance is rarer in painting, photography, or graphic design than in architecture. In fact, relatively few two- or three dimensional artworks would fit a strict definition of symmetry. When successfully employed, symmetry is used to reinforce the subject, not merely as a crutch for a simple solution.

Symmetry can appear artificial, as our visual experiences in life are rarely symmetrically arranged. Some buildings and interiors are so designed, but even here, unless we stand quietly at dead center, our views are always asymmetrical.

## **Asymmetrical Balance (Informal Balance)**

The second type of balance is called asymmetrical balance. In this case balance is achieved with dissimilar objects that have equal visual weight or equal eye attraction. Remember the children's riddle, "Which weighs more, a pound of feathers or a pound of lead"? Of course, they both weigh a pound, but the amount and mass of each vary radically. This, then, is the essence of asymmetrical balance.

### **Balance by Value**

Asymmetrical balance is based on equal eye attraction dissimilar objects are equally interesting to the eye. One element that attracts our attention is value difference, a contrast of light and dark.

### **Balance by Color**

Our eyes are drawn by color. Small areas of vibrant color can be used to balance larger areas of more neutral colors. The vivid on the right is balanced by the larger neutral green.

### **Balance by Texture & Pattern**

Any visual texture with a variegated dark and light pattern holds more interest for the eye than does a smooth, unrelieved surface. The smaller, rough textured area balances the larger, basically untextured area (smoothness is, in a sense, a texture).

### **Balance by Position & Eye Direction**

A well-known principle in physics says that two items of unequal weight can be brought to equilibrium by moving the heavier inward toward the fulcrum. In design this means that a large item placed closer to the center can be balanced by a smaller item placed out toward the edge.

Balance by position often lends an unusual, unexpected quality to the composition. The effect not only appears casual and unplanned but also can make the composition seem, at first glance, to be in imbalance.

Eye direction is a commonly used device. Eye direction is carefully plotted, not only for balance but also for general compositional unity.

### **Dynamic Combinations of Elements**

Photograph appears to be essentially symmetrical with elements balanced to the left and right of the center. In fact, it is the asymmetrical aspects of the composition that keep us engaged:

The white car on the left blends into the light sand, while the blue picnic stand on the right echoes the sky. The open door and figure on the left balance two figures on the right. The clouds are distributed equally left and right, but the shapes vary.

The photograph seems remarkably symmetrical for an unposed, spontaneous moment. The picture is, in fact, a play between the asymmetrical balance of lively casual elements and a symmetry that evokes a staged or artificial quality.

## **Radial Balance**

A third variety of balance is called radial balance. Here all the elements radiate or circle out from a common central point. The sun with its emanating rays is a familiar symbol that expresses the basic idea. Radial balance is not entirely distinct from symmetrical or asymmetrical balance. It is merely a refinement of one or the other, depending on whether the focus occurs in the middle or off center.

## **Rhythm**

Rhythm as a design principle is based on repetition. Repetition, as an element of visual unity, is exhibited in some manner by almost every work of art. However, rhythm involves a clear repetition of elements that are the same or only slightly modified.

It is basically related to movement, Here the concept refers to the movement of the viewer's eye, a movement across recurrent motifs providing the repetition inherent in the idea of rhythm.

The rhythmic repetition of colors or textures, is most often we think of rhythm in the context of shapes and their arrangement. In music, some rhythms are called legato, or connecting and flowing. The same word could easily be applied to the visual effect in the photograph of Death Valley shows the sand dune ridges in undulating, flowing, horizontal curves.

The dark and light contrast is quite dramatic, but in several places the changes are soft with smooth transitions. The feeling is relaxed and calm.

### **Alternating rhythm**

Rhythm is a basic characteristic of nature. The pattern of the seasons, of day and night, of the tides, and even of the movements of the planets, all exhibit a regular rhythm. This rhythm consists of successive patterns in which the same elements reappear in a regular order. In a design or painting, this would be termed an alternating rhythm, as motifs alternate consistently with one another to produce a regular (and anticipated) sequence. This predictable quality of the pattern is necessary, for unless the repetition is fairly obvious, the whole idea of visual rhythm becomes obscure.

### **Progressive rhythm**

Again, the rhythm involves repetition, but repetition of a shape that changes in a regular manner. There is a feeling of a sequential pattern. This type of rhythm is most often achieved with a progressive variation of the size of a shape, though its color, value, or texture could be the varying element. Progressive rhythm is extremely familiar to us; we experience it daily when we look at buildings from an angle. The perspective changes the horizontals and verticals into a converging pattern that creates a regular sequence of shapes gradually diminishing in size.

## Compositional techniques

There are numerous approaches or “compositional techniques” to achieving a sense of unity within an artwork, depending on the goals of the artist. For example, a work of art is said to be aesthetically pleasing to the eye if the elements within the work are arranged in a balanced compositional way. However, there are artists such as Salvador Dalí whose sole aim is to disrupt traditional composition and challenge the viewer to rethink balance and design elements within art works.

Conventional composition can be achieved by utilizing a number of techniques:

### Rule of thirds

The rule of thirds is a guideline followed by some visual artists. The objective is to stop the subject(s) and areas of interest (such as the horizon) from bisecting the image, by placing them near one of the lines that would divide the image into three equal columns and rows, ideally near the intersection of those lines.

The rule of thirds is thought to be a simplification of the golden mean. The golden mean is a ratio that has been used by visual artists for centuries as an aid to composition. When two things are in the proportion of 1:1.618 (approximately  $\frac{3}{8}$  to  $\frac{5}{8}$ ), they are said to be in the golden mean.

Dividing the parts of an image according to this proportion helps to create a pleasing, balanced composition. The intersection points on a golden mean grid appear at  $\frac{3}{8}$  in and  $\frac{3}{8}$  down/up, rather than at  $\frac{1}{3}$  in and  $\frac{1}{3}$  down/up on the grid of thirds.

### Rule of odds

The “rule of odds” states that by framing the object of interest with an even number of surrounding objects, it becomes more comforting to the eye, thus creates a feeling of ease and pleasure. It is based on the assumption that humans tend to find visual images that reflect their own preferences/wishes in life more pleasing and attractive.

The “rule of odds” suggests that an odd number of subjects in an image is more interesting than an even number. Thus if you have more than one subject in your picture, the suggestion is to choose an arrangement with at least three subjects. An even number of subjects produces symmetries in the image, which can appear less natural for a naturalistic, informal composition.

An image of a person surrounded/framed by two other persons, for instance, where the person in the center is the object of interest in that image/artwork, is more likely to be perceived as friendly and comforting by the viewer, than an image of a single person with no significant surroundings.

### Rule of space

The rule of space applies to artwork (photography, advertising, illustration)

picturing objects to which the artist wants to apply the illusion of movement, or which is supposed to create a contextual bubble in the viewer's mind.

This can be achieved, for instance, by leaving white space in the direction the eyes of a portrayed person are looking, or, when picturing a runner, adding white space in front of him rather than behind him to indicate movement, which called lead room.

## **Simplification**

Images with clutter can distract from the main elements within the picture and make it difficult to identify the subject. By decreasing the extraneous content, the viewer is more likely to focus on the primary objects.

Clutter can also be reduced through the use of lighting, as the brighter areas of the image tend to draw the eye, as do lines, squares and color. In painting, the artist may use less detailed and defined brushwork towards the edges of the picture.

## **Balancing Elements**

Placing main subject off-centre, as with the rule of thirds, creates a more interesting photo, but it can leave a void in the scene which can make it feel empty. You should balance the “weight” of your subject by including another object of lesser importance to fill the space.

## **Leading Lines**

When we look at a photo our eye is naturally drawn along lines. By thinking about how you place lines in your composition, you can affect the way we view the image, pulling us into the picture, towards the subject, or on a journey “through” the scene. There are many different types of line - straight, diagonal, curvy, zigzag, radial etc - and each can be used to enhance our photo's composition.

## **Symmetry and Patterns**

We are surrounded by symmetry and patterns, both natural and man-made., They can make for very eye-catching compositions, particularly in situations where they are not expected. Another great way to use them is to break the symmetry or pattern in some way, introducing tension and a focal point to the scene.

## **Viewpoint**

Before photographing subject, Photographer take time to think about where he will shoot it from. Our viewpoint has a massive impact on the composition of our photo, and as a result it can greatly affect the message that the shot conveys.

Rather than just shooting from eye level, consider photographing from high above, down at ground level, from the side, from the back, from a long way away, from very close up, and so on.

## **Depth**

Because photography is a two-dimensional medium, we have to choose our composition carefully to convey the sense of depth that was present in the actual scene. You can create depth in a photo by including objects in the foreground, middle ground and background. Another useful composition technique is overlapping, where you deliberately partially obscure one object with another. The human eye naturally recognizes these layers and mentally separates them out, creating an image with more depth.

## **Framing**

The world is full of objects which make perfect natural frames, such as trees, archways and holes. By placing these around the edge of the composition you help to isolate the main subject from the outside world. The result is a more focused image which draws your eye naturally to the main point of interest.